Date: January 7, 2010

Title: 7.1 Secret Codes part 2

Objective:

To compare and contrast a **FUNCTION** with a **RELATION**.

IN:

The OUTPUT values of a function are called the _____.

The INPUT values of a function are called the _____.

Secret Codes

The study of secret codes is called *cryptography*. Early examples of codes go back 4000 years to Egypt. Writing messages in code plays an important role in history and in technology. Today you can find applications of codes at ATMs, in communications, and on the Internet.

Cryptography is an intellectual battle between the code-maker and the code-breaker.

SIMON SINGH

ASCII code

American Standard Code for Information Interchange

pronounced "ASK-ee"

Domain	A	B	C	D	E	F	G	H	I	J	K	L	M
Range	65	66	67	68	69	70	71	72	73	74	75	76	77

Domain	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Range	78	79	80	81	82	83	84	85	86	87	88	89	90

This code allows computers to store letters as numbers.

Domain	A	B	C	D	E	F	G	H	I	J	K	L	M
Range	65	66	67	68	69	70	71	72	73	74	75	76	77

Domain	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Range	78	79	80	81	82	83	84	85	86	87	88	89	90

W2L: The ASCII example is an example of a _____ because:

The domain is _____ _____ and the range is _____

Something to think about!

For a relation to be a function, does every ***output*** have to have only one ***input***?

Tell whether each table of values represents a function. Give the domain and range of each relation.

Table A

Input	Output
1	2
2	4
3	6

Table B

Input	1	0	1
Output	1	2	5

Table C

Input	1	2	3	4	5	6
Output	0	0	0	0	0	0

A functional relationship can also be represented by a diagram...

Table A

Each input value matches one output value. So this relation is a function. The domain is {1, 2, 3}, and the range is {2, 4, 6}.

Table B

The input value 1 has two outputs, 1 and 5. This relation is not a function because there is an input value with more than one output value. The domain is {0, 1}, and the range is {1, 2, 5}.

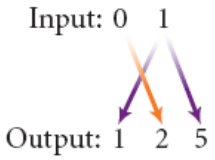
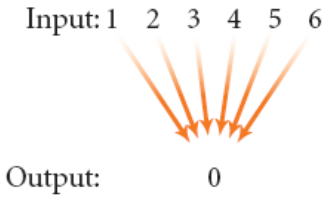
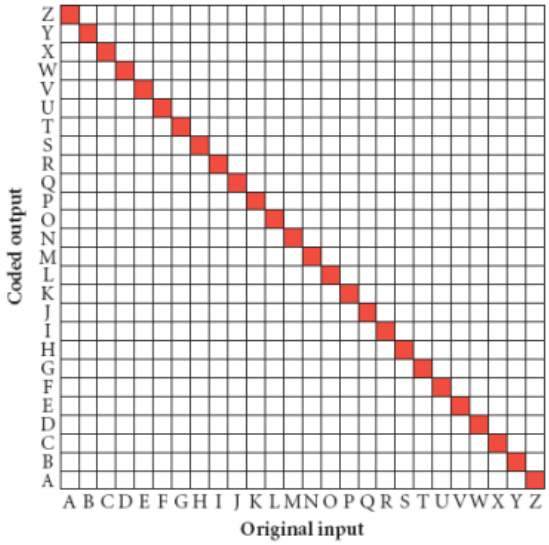


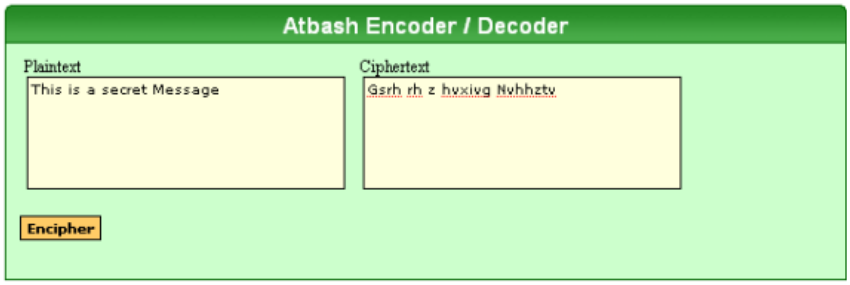
Table C

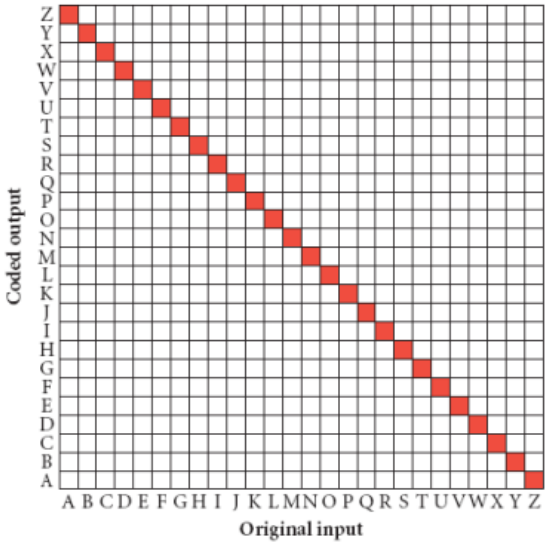
Each input value has exactly one output value. So this relation is a function, even though all the inputs have the same output. The domain is {1, 2, 3, 4, 5, 6}, and the range is {0}.





The grid at the right shows an ancient Hebrew code called "atbash".





Using "position numbers", create a rule for the abash code.

a = 1
b = 2
c = 3...

Click here for the answer

Summary:

What is the difference between a function and a relation?

Homework
7.1 part 2
Worksheet
answers are on the wiki!

Out:

Create two tables.. one that represents a function and one that represents a relation that is NOT a function.